

IN THE CLAIMS

1 (Currently Amended). A method comprising:
forming a substantially planar surface; and
forming a phase change material between a pair of horizontally spaced electrodes
formed on said substantially planar surface.

2 (Original). The method of claim 1 including enabling light to access said phase change material.

3 (Original). The method of claim 1 including forming a conductive line in a substrate and forming said material and said electrodes over said substrate.

4 (Original). The method of claim 3 including forming a selection device in said substrate.

5 (Original). The method of claim 4 including forming a electrical connection from said substrate to a second electrode.

6 (Original). The method of claim 5 including electrically coupling said second electrode to one of said horizontally displaced electrodes.

7 (Original). The method of claim 1 including covering at least a portion of said phase change material with an optically transmissive material.

8 (Original). The method of claim 1 including forming two pairs of electrodes for two spaced cells at the same time.

9 (Original). The method of claim 8 including depositing a material to form said electrodes in a trench.

10 (Original). The method of claim 9 including clearing the bottom of the trench to separate said electrodes and filling the remaining portion of said trench with the phase change material.

11 (Original). The method of claim 1 including covering said phase change material with a light transmissive material.

12 (Currently Amended). A memory comprising:
a substantially planar surface;
a pair of horizontally spaced electrodes formed on said substantially planar surface; and
a phase change material between said pair of horizontally spaced electrodes.

13 (Original). The memory of claim 12 wherein said spaced electrodes and said phase change material are formed over a substrate having a horizontally disposed upper surface.

14 (Original). The memory of claim 12 including a light transmissive material over said phase change material.

15 (Original). The memory of claim 14 wherein said light transmissive material is a non-switching high bandgap, and electrically insulating chalcogenide material.

16 (Original). The memory of claim 12 wherein said phase change material is a chalcogenide material.

17 (Original). The memory of claim 12 wherein said spaced electrodes sandwich the phase change material, one of said spaced electrodes being shorter than the other of said electrodes, an optically transmissive material contacting the shorter of said spaced electrodes and said phase change material.

18 (Original). The memory of claim 17 wherein said phase change material is sandwiched laterally between parallel plate electrodes.

19 (Original). The memory of claim 18 including a substrate and a selection device in said substrate, said selection device coupled to a second electrode above said substrate, said second electrode coupled to a conductive material in turn coupled to the shorter of said spaced electrodes.

20 (Original). The memory of claim 17 including a pair of cells positioned side by side, each cell including said horizontally spaced electrodes with a phase change material between said electrodes, an optically transparent material arranged so as to extend over the phase change material memory of each cell, said cells being separated by an insulating material.

21 (Original). The memory of claim 20 wherein each cell includes a conductor coupled to a selection device in said substrate, each conductor in turn coupled to an electrically conductive via that couples said conductor to the shorter of said spaced electrodes.

22 (Currently Amended). A system comprising:
a controller;
a wireless interface coupled to said ~~processor-based device~~ controller; and
a semiconductor memory coupled to said device, said memory including a substantially planar surface, ~~phase change material~~ and a pair of horizontally spaced electrodes formed on said surface, and a sandwiching said phase change material, said electrodes sandwiching said phase change material.

23 (Original). The system of claim 22 wherein said phase change material is a chalcogenide.

24 (Original). The system of claim 22 wherein said spaced electrodes and said phase change material are formed over a substrate having a horizontally disposed upper surface.

25 (Original). The system of claim 22 including a light transmissive material over said phase change material.

26 (Currently Amended). The system of claim 22 wherein said wireless interface ~~antenna~~ includes a dipole antenna.